

REMARKS

Claims 1-74 are pending in the case. In the Office Action mailed December 15, 2004, the Examiner took the following action: (1) objected to the drawings due to informalities; (2) objected to claim 36 due to informalities; (3) rejected claims 1, 5, 6, 34-37, 53, 55, 56, 58, 59, 61-63, 65, 67, 68, and 70-72 under 35 USC § 102(b) as being anticipated by Nishi et al. (U.S. 6,467,358); (4) rejected claims 2-4 and 22-25 under 35 USC § 103(a) as being unpatentable over Nishi in view of Butler (U.S. 6,234,030); and (5) rejected claims 7, 21, 26, 38, 54, 57, 60, 64, 66, 69, 73, and 74 under 35 USC § 103(a) as being unpatentable over Nishi in view of Butler, and further in view of Guerreri (U.S. 5,706,273). The Examiner acknowledged that claim 39 is allowable, and indicated that claims 8-20, 27-33, and 40-52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to include the limitations of their respective base and intervening claims. Applicants respectfully request reconsideration of the application in view of the foregoing amendments and the following remarks.

I. Objection to the Drawings

The Examiner objected to the drawings on grounds that the drawings did not show second and third telemetry modules as recited in the claims. Applicants have amended claims 10, 13, 16, 30, 33, and 47 to remove reference to second and third (and fourth) telemetry modules. Therefore, Applicants respectfully request reconsideration and withdrawal of the objection to the drawings.

II. Objection to Claim 36

The Examiner objected to claim 36 due to lack of antecedent basis for the term "the density sensor." Applicants have amended claim 36 to correct the dependency of this claim, thereby correcting the antecedent basis informality. Therefore, Applicants respectfully request reconsideration and withdrawal of the objection to claim 36.

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III. Rejections of claims based on Nishi et al, Butler and Guerreri

The Examiner rejected claims 1, 5, 6, 34-37, 53, 55, 56, 58, 59, 61-63, 65, 67, 68, and 70-72 under 35 USC § 102(b) as being anticipated by Nishi et al. (U.S. 6,467,358), rejected claims 2-4 and 22-25 under 35 USC § 103(a) as being unpatentable over Nishi in view of Butler (U.S. 6,234,030); and rejected claims 7, 21, 26, 38, 54, 57, 60, 64, 66, 69, 73, and 74 under 35 USC § 103(a) as being unpatentable over Nishi in view of Butler, and further in view of Guerreri (U.S. 5,706,273).

Nishi et al. (U.S. 6,467,358)

Nishi teaches a capacitance water cut meter. (Figure 5, and columns 7 and 8). More specifically, at lines 48 through 53 of column 7, the apparatus of Nishi is designed to measure the electrostatic capacitance of the multi-phase fluid.

On the other hand, the apparatus recited in the claims of the subject application relies on magnetic fields to induce currents in the multi-phase fluid. The amount of current induced in the multi-phase fluid is then measured using a reversal of the same process. The signal generated from this process provides an indication of the water cut in the fluid. This is not measuring the capacitance of the fluid. This process is measuring the magnitude of the ability to induce the current to flow, which is affected by the water cut of the fluid. The ability to induce a current to flow in a fluid using a magnetic field falls under the concepts defined by magneto-hydrodynamics.

Four independent claims (claims 1, 22, 53, and 65) stand rejected over Nishi. All of the independent claims depend therefrom. All four of these independent claims presently define over Nishi.

More specifically, claim 1 recites in relevant part an apparatus comprising "a magnetic source disposed inside the interior passage, the magnetic source being positioned such that a magnetic field producible by the magnetic source is configured to induce an electric current in a

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conductive portion of the flow of fluid as the flow of fluid passes from the receiving end of the housing to the output end of the housing; and a detector disposed inside the interior passage between the magnetic source and the output end of the housing, the detector being configured to respond to the electric current induced in the conductive portion of the flow of fluid and generate a first signal representative of an amount of oil the flow of fluid.” Applicants respectfully submit that the above-quoted portion of claim 1 is not disclosed, taught, or fairly suggested by Nishi, and that these failings are not remedied by the teachings of Butler and Guerri.

Similarly, claim 22 recites in relevant part a system comprising “a magnetic source disposed inside the interior passage, the magnetic source being positioned such that a magnetic field producible by the magnetic source is configured to induce an electric current in a conductive portion of the flow of fluid as the flow of fluid passes from the receiving end of the housing to the output end of the housing; [and] a detector disposed inside the interior passage between the magnetic source and the output end of the housing, the detector being configured to respond to the electric current induced in the conductive portion of the flow of fluid and generate a first signal representative of an amount of oil the flow of fluid[.]” Applicants respectfully submit that the above-quoted portion of claim 22 is not disclosed, taught, or fairly suggested by Nishi, and that these failings are not remedied by the teachings of Butler and Guerri.

Claim 53 recites in relevant part a method comprising “generating a magnetic field in the flow of fluid passing through the housing to induce an electric current in a conductive portion of the flow of fluid; measuring the current induced in the conductive portion of the flow of fluid; [and] calculating a relative amount of oil in the flow of fluid based on the current induced in the conductive portion of the flow of fluid[.]” Applicants respectfully submit that the above-quoted portion of claim 53 is not disclosed, taught, or fairly suggested by, and that these failings are not remedied by the teachings of Butler and Guerri.

Finally, claim 65 recites in relevant part a method comprising “generating a magnetic field in the flow of fluid passing through the housing to induce an electric current in a conductive

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portion of the flow of fluid; measuring the current induced in the conductive portion of the flow of fluid; [and] calculating a relative amount of oil in the flow of fluid based on the current induced in the conductive portion of the flow of fluid[.]” Applicants respectfully submit that the above-quoted portion of claim 65 is not disclosed, taught, or fairly suggested by, and that these failings are not remedied by the teachings of Butler and Guerreri.

For the foregoing reasons, Applicants request reconsideration and withdrawal of the rejections of claims 1, 5, 6, 34-37, 53, 55, 56, 58, 59, 61-63, 65, 67, 68, and 70-72 under 35 USC § 102(b) as being anticipated by Nishi et al. (U.S. 6,467,358), the rejections of claims 2-4 and 22-25 under 35 USC § 103(a) as being unpatentable over Nishi in view of Butler (U.S. 6,234,030); and the rejections of claims 7, 21, 26, 38, 54, 57, 60, 64, 66, 69, 73, and 74 under 35 USC § 103(a) as being unpatentable over Nishi in view of Butler, and further in view of Guerreri (U.S. 5,706,273).

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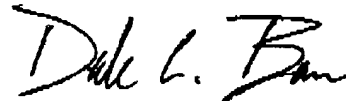
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CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration of the rejections of claims 1-74 and the allowance of same. If there are any matters that may be handled by telephone conference, the Examiner is kindly requested to contact the undersigned.

Respectfully submitted,

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MAIL CERTIFICATE

I hereby certify that this communication is being deposited with the United States Postal Service via first class mail under 37 C.F.R. § 1.08 on the date indicated below addressed to: MAIL STOP AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

April 14, 2005
Date of Deposit

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